

## TEMPERATURE OF THE AIR.

*In General.*—The general distribution of temperature is shown by the isotherms on Chart No. II, from which it will be seen that the isotherm of 75° passed from central Texas eastward through the northern portion of the Gulf of Mexico and over the central portion of the Florida peninsula. The isotherm of 45° skirts along the coast of the Gulf of St. Lawrence from Cape Breton to the Saguenay. Mean temperatures at special points have been: Mt. Washington, 32°; Pike's Peak, 18°; Portland, Or., 57°; Portland, Me., 56°; San Diego, 60°; Charleston, 69°; Brownsville, Texas, 81°; Pembina, 57°. A comparison with the mean temperatures at the same stations since 1870 shows temperatures above the average in Minnesota, the Lake region and New England, but below the average in the Lower Missouri and Ohio valleys, and the South and Middle Atlantic States.

*Maximum and Minimum Temperatures.*—Maximum temperatures above 91°: 92° at Baltimore, 18th; Fort Gibson, 23rd; Indianola—Memphis, 22nd; New Orleans, 23rd; Concho, 27th and 30th. 93° at Denison, 23rd; Pittsburgh, 19th; St. Marks, 23rd; Fort Whipple, 19th. 94° at Augusta, 22nd; Knoxville, 18th; Lynchburg, 19th; Mobile, 23rd; Savannah, —th. 95° at Corsicana, 21st; Montgomery, 22nd; Vicksburg, 23rd; San Antonio, 26th. 96° at Jacksonville, 23rd; Norfolk, —th; Washington, 18th; Uvalde, —th. Minimum temperatures below 34: 33° at Chicago, 2nd; Grand Haven, 1st and 2nd; Pittsburgh, 3rd; Toledo, —th. 32° at Albany, —th; Bismarck, 3rd; Buffalo, —th; Cleveland, 1st; Denver, 6th; Detroit, 2nd; Erie, —th; North Platte, 7th; Rochester, 3rd. 31° at Breckenridge, 4th; Burlington, 5th; Dubuque, 1st; Indianapolis, —th; La Crosse, 1st; Morgantown, 3rd; Yankton, 1st. 30° at Milwaukee, 2nd. 29° at Port Huron, 2nd; Santa Fe, 4th. 27° at Alpena, 2nd; Cheyenne, 6th; Duluth, —th; Pembina, 1st. 26° at Marquette, —th; Virginia City, 6th. 24° at Escanaba, 1st. 11° at Mt. Washington, 3rd. 1° at Pike's Peak, 6th.

It will be seen that a remarkable interval of high temperatures prevailed from the 17th to the 23rd over a great part of the country east of the Mississippi, during which time the area of high barometer No. II was receding southeastward over the Atlantic States, and low barometer No. XI was moving eastward towards and over the Lake region.

*Ranges of Temperature.*—The largest diurnal ranges are as follows: 37° at Breckenridge, 24th; Dodge City, 1st; Eastport, 29th; Santa Fe, 28th; 38° at Denver, 8th; Port Huron, 19th; 39° at North Platte, —; Boerne and Uvalde, 1st; 40° at Pembina, 24th. The largest monthly ranges have been: 56° at Alpena, Dubuque, Knoxville, Port Huron, Washington, Uvalde; 57° at Indianapolis; 59° at Morgantown; 60° at Pittsburgh; 64° at Marquette. The least monthly ranges have been: 33° at Cape Hatteras and Indianola; 34° at Cape Lookout and Pike's Peak; 35° at Cape May; 32° at Galveston; 27° at Key West and San Francisco.

*Frosts* have been reported as follows: 1st, Ind., (severe,) Ky., Ala., Ga., Ill., Iowa, Kan., Miss., (last,) Mo., Nebr., N. C., (severe,) Ohio, Tenn., Tex., Va., Wis. 2d, Ohio, Mich., Ind., (severe,) Tenn., Ky., Ga., Ill., Iowa, Mass., N. Y., N. C., (severe,) Penn., Tenn., Utah, Va., W. Va., Wis. 3d, Mich., Conn., Del., Ill., Ind., Iowa, Me., Md., Mass., N. J., N. Y., N. C., Ohio, Penn., Tenn., Va., W. Va., Wis. 4th, Ind., N. Mex., Mich., Ohio, Colo., Del., Ill., Mo., Nebr., N. J., N. Y., Penn., Vt., Wis. 5th, Conn., Mich., Del., Kan., Me., Md., Mass., N. H., N. J., N. Y., Penn., Vt. 6th, Me., N. H., N. Y., Penn., Utah. 7th, Neb., Dak., Conn., Iowa, Kan., (severe,) Md., Mass., Mich., N. H., N. Y., Penn. 8th, Me., Ill., Iowa, Kan., N. H., N. Y. 9th, Ill., Ind., Iowa, Mich., N. Y., N. C., Ohio, Tenn., Wis. 10th, Ohio, Ill., Ind., Iowa, Me., Md., Mich., N. C., (killing,) Penn., S. C., Tenn., Utah, Va., Wis. 11th, Me., Ohio, Del., Ind., Mich., N. C., Penn., Vt., Va., W. Va., Wis. 12th, Del., Ind., Me., N. J., Ohio, Penn., Vt., Wis. 13th, Mich., Ohio, Penn., Vt. 14th, Wyo., Me., N. Y., Ohio. 18th, N. Mex. 20th, N. Mex. 21st, Me., Ill. 22d, Ill. 23d, Mich., Ill., Utah, (severe,) Vt., Wis. 24th, Ill., Ind., Iowa, Mich., N. Y., N. C., Ohio, Penn., Va., Wis. 25th, Ind., Ill., Iowa, Md., (heavy,) N. J., N. Y., Ohio, Va., Wis. 26th, Mich., Ill., Ind., N. C., Ohio, Va. 27th, Ill., N. Y. 28th, N. Y., Vt. 29th, N. Y., N. C. 30th, N. C. 31st, N. Mex.

*Ice.*—The formation of ice, rather than frosts: 1st, N. C.; 2nd, N. C.; 3rd, Conn., W. Va., Mass.; 10th, N. C.; 25th, Va.

## PRECIPITATION.

*In General.*—The general distribution of rain and melted snow for May, is shown on chart No. III, from which it will be seen that the region of largest rain-fall extends from central Texas northward to Manitoba, with small areas of large rain-fall in southern Florida and the coast of the Canadian Provinces. This distribution of rain-fall for May appears to be quite anomalous, nothing similar having occurred during the last six years, the nearest approach to it being May, 1874, when narrow belts of heavy precipitation extended from Indian Territory to Lake Huron and also along the Atlantic coast; as a consequence the rain-fall west of the Mississippi is largely in excess of the normal values; on the other hand a large deficiency is reported from the Gulf and Atlantic States, the Ohio and St. Lawrence valleys and the Lake region. A

deficiency is also noted in the greater part of California, which, by the 10th of June, had caused a severe drought in many sections, although sufficient fell on the west slopes of mountain ranges.

*Heavy Special Rains.*—Dodge City, 24th and 25th, 2.15 inches. Denison, 2nd, 2.07. Duluth, 19th to 21st, 4.30. Fort Sill, 19th and 20th, 2.83. Leavenworth, 16th, 2.40; 31st, 2.30. Omaha, rained more or less every day from the 10th to the 20th, inclusive, during which time 4.57 inches fell; 31st, 2.24. St. Paul, 30th and 31st, 3.31. St. Augustine, Fla., 27th, 10 a. m. to 28th 7 a. m., 6.50. Fort Snelling, Minn., 20th, 3.34; 30th, 4.30; 31st, 5.12. Golden, Col., 2nd, 5th and 6th, snow-fall 10 $\frac{1}{2}$ . Belvidere, Ill., 20th, 1.03 rain-fall in twenty minutes. Manhattan, Kan., 19th 3 inches during the night. Creswell, Kan., 12th 3 inches; 18th, 3.23. Austin, Tex., 6th, 3 inches in the morning.

*Small Monthly Rain-falls.*—The following stations report less than 0.50 inches of rain during the month: San Diego, 43; San Francisco, 18; Eagle Pass, 43; Florence, 31; Tucson and Maricopa Wells, 41; Sanguen, 26; Yuma, 06; Salinas City, Cal., 0.20; Forsyth, Ga., 0.45; Palermo, N. Y., 0.40; Nile, N. Y., 0.45; Ruggles, Ohio, 0.25; Hudson, Ohio, 0.25; Salem, Ohio, 0.35; Franklin, Penn., 0.47; Tusculum, Tex., 0.51. (the smallest for many years;) Strafford, Vt., 0.4.

*Large Monthly Rain-falls.*—Rain to the amount of seven inches or more fell during the month at the following stations: Duluth and Fort Sill, 7.24; Leavenworth, 8.67; Omaha, 8.62; St. Augustine, Fla., 9.95; Fort Snelling, Minn., 14.48; Creswell, Kan., 11.81; Segwick, Kan., 16.37; Springfield, Mo., 8.55; Clear Creek, Neb., 10.87; Howard, Neb., 10.05.

*Droughts.*—Droughts, injurious to vegetation, have been reported as follows: Cal., droughts in the interior, but abundant rains on the coast side of the mountains. Fla., severe droughts, but crop not yet injured. Ill., strawberry crop shortened one-third by drought. Southern Ind., vegetation suffering for want of rain. Ohio, very dry, corn and oats need rain. Tenn., smallest rain-fall for many years, gardens are suffering. S. Car., (York Co.) no rain throughout the month; crops all suffering.

*Hail-storms.*—Special notes of hail-storms have been received from 93 stations on 29 days, distributed as follows: On the 1st, N. Y.; 2nd, Kan.; 3rd, Tex.; 4th, N. Y.; 5th, Tex., S. C., Tenn., Mont.; 6th, Tex., Fla.; 7th, Ala., Tex.; 8th, S. C.; 9th, Nev., N. C.; 11th, Nev., Utah, Tex.; 12th, Tex.; 14th, Dak., N. C.; 15th, Minn., Neb., Tenn.; 16th, Cal., Col., N. Y.; 17th, Iowa, Mass., Neb.; 18th, Neb., Cal., Conn., N. Y., R. I., Vt.; 19th, Dak., Tex.; 20th, Nev., Ind.; 21st, Nev., Ill., Md., N. J., Penn., Tenn., W. Va.; 22nd, Nev., Del., N. J., Penn., Neb., Tex.; 24th, Tex., N. Y.; 25th, N. J., N. Y., Col.; 26th, N. J., Penn.; 27th, Md., Neb., Tex.; 28th, Dak., Neb. Tex.; 29th, Ill., Kan.; Col., Dak., Neb.; 31st, Dak., Kan., Utah, Iowa, Minn., Mo., Neb., Ill.

*Large Hail-stones.*—Among the cases of large hail-storms are the following: 3rd, terrific and destructive storm near Mason, Tex., hail as large as a man's hand, crushing crops and killing thousands of sheep. 4th, near Mendon, Mass. 7th, in Sabine county, Texas, 2.6 in. diameter, 3 to 4 in. long. 14th, at Bismarck, Dak., hail-stones 1.7 in. long, 1 in. wide, (see Loomis, p. 131, fig. 54.) 18th, the local storms and tornadoes of the 18th, elsewhere described, were accompanied by large hail, as follows: Cranston, R. I., 1 in. in diameter; Pascoag, R. I., 1 $\frac{1}{2}$  in.; Brookfield, Mass., 1 in.; Webster, Mass., 3 in.; Oxford, Mass., 4 in. Bennington, Vt., 5 in. 27th, 22 miles north of Mason, Texas, 3 to 4 in. diameter, crushing through roofs; at Fort McKavett, 1 in. diameter, very destructive.

*Snow-fall.*—Falls of snow have been reported as follows: 1st, Mich., Ohio, Wy., Ind., N. Y., W. Va., Penn., Mon.; 2nd, Wy., Col., N. Y., Va.; 3rd, Wy., Va., Mich.; 4th, Mon.; 5th, Wy., Col., Mon.; 6th, Wy., Col.; 7th, Mon.; 8th, Mon.; 9th, W. Va., Mon.; 10th, Me., Vt.; 12th, Wy.; 17th, Utah, Mon.; 18th, Utah; 19th, Wy., N. M.; 23rd, Nev.; 24th, N. J., N. Y., Mass., (4 inches in Berkshire county;) 29th, Nev.; 30th, Wy.; 31st, Wy., Mon.

*Rainy days.*—The number of days during the month on which rain has fallen, as reported by the Signal Service observers, ranges from 5 to 17 in New England; 9 to 14 in the Middle Atlantic States; 5 to 14 in the South Atlantic States; 3 to 13 in the Gulf States; 5 to 15 in the Ohio valley and Tennessee; 6 to 11 in the Lower Lake region; 4 to 11 in the Upper Lake region; 9 to 27 in the Northwest; 8 to 22 at the Rocky Mountain stations; 3 in Arizona; 10 at San Diego; 1 at San Francisco; and 16 at Portland, Oregon.

*Cloudy days.*—The number of cloudy days during the month, as reported by the voluntary and army surgeon observers, ranges as follows: New England, 5 to 12; Middle States, 3 to 13; South Atlantic States, 0 to 8; Gulf States, 0 to 10; Tennessee and the Ohio valley, 2 to 13; Upper Lake region, 1 to 9; Northwest, 2 to 18; Colorado, Wyoming, Utah and Idaho, 4 to 9; California, 1 and 2.

## RELATIVE HUMIDITY.

The average relative humidity for the month ranges from 69 to 75 per cent. at the stations on the immediate coast of North Carolina, New Jersey and New England; other stations in the Atlantic States,